CLAIMS

WHAT IS CLAIMED IS:

1. A multiple camera video system, comprising:

a plurality of cameras;

a master pan head for positioning a selected master camera from said plurality of cameras; and

a master broadcaster computer for calculating telemetry for at least one slave camera from said plurality of cameras.

2. The system of Claim 1, wherein said master pan head is remote from said plurality of cameras.

3. The system of Claim 1, wherein said master pan head includes a monitor mounted thereon.

4. The system of Claim 1, wherein said master pan head includes a zoom adjustment.

5. The system of Claim 1, wherein said master pan head includes a height intersect adjustment.

6. The system of Claim 5, wherein said height intersect is selected using the wheel on a computer mouse.

7. The system of Claim 1, further comprising:

a plurality of robotic pan heads upon which each of said plurality of cameras is mounted for remotely controlling said plurality of cameras.

8. The system of Claim 7, wherein said robotic pan heads include a pan and tilt function.

9. The system of Claim 8, wherein the pan and tilt axes of the robotic pan heads intersect at a point within the body of said plurality of cameras.

10. The system of Claim 1, further comprising:

at least one paint station connected to said master broadcaster computer.

11. The system of Claim 10, wherein each of said at least one paint stations comprises:

a monitor;

an input device; and

a paint station computer running paint station software.

12. The system of Claim 11, wherein said paint station is capable of adjusting an attribute of at least one of said plurality of cameras.

13. The system of Claim 12, wherein said attribute is selected from the group consisting of red paint, green paint, blue paint, shutter, iris, zoom, and focus.

14.   The system of Claim 12, wherein the paint station can adjust said attribute on more than one of said plurality of cameras simultaneously.

15.   The system of Claim 12, wherein said camera attribute can be adjusted while the camera telemetry is being automatically controlled by the master broadcaster computer.

16.   The system of Claim 12, wherein the number of said at least one paint stations is at least one-fifth the number of cameras.

17.   The system of Claim 1, further comprising:

at least one calibration station.

18.   The system of Claim 17, wherein said at least one calibration station is capable of creating a point calibration table for each of said plurality of cameras.

19.   The system of Claim 17, wherein said at least one calibration station is capable of creating a zoom calibration table for each of said plurality of cameras.

20.   The system of Claim 17, wherein said at least one calibration station is capable of creating a focal calibration table for each of said plurality of cameras.

21. The system of Claim 17, wherein the number of said at least one calibration station is at least one-fifth the number of cameras.

22. The system of Claim 1, further comprising:

at least one video storage device.

23. The system of Claim 22, wherein said at least one video storage device is a plurality of digital disc recorders.

24. The system of Claim 22, wherein said at least one video storage device is a file server.

25. The system of Claim 23, further comprising:

a digital router connecting the outputs of each of said plurality of digital disc recorders; and

a first slow motion controller.

26. The system of Claim 25, wherein said slow motion controller is capable of selecting a router output from the plurality of digital disc recorders.

27. The system of Claim 25, wherein said slow motion controller is capable of controlling each of the plurality of digital disc recorders simultaneously.

28. The system of Claim 27, wherein said slow motion controller is capable of controlling the forward and backward motion of the output of each of said plurality of digital disc recorders.

29. The system of Claim 25, further comprising:

an additional digital disc recorder connected to the output of said digital router.

30. The system of Claim 29, further comprising:

a second slow motion controller for controlling the output of said additional digital disc recorder.

31. The system of Claim 1, further comprising:

a communications medium coupling the plurality of cameras to the master broadcaster computer.

32. The system of Claim 31, wherein said communications medium is fiber optic cable.

33. The system of Claim 32, wherein said fiber optic cable is multi-mode fiber optic cable.

34. The system of Claim 31, wherein said communications medium is triaxial cable.

35. The system of Claim 34, wherein a semiconductor in said triaxial cable is used to modulate camera telemetry information and captured image data.

36. The system of Claim 31, wherein said communications medium is a wireless RF connection.

37. The system of Claim 1, further comprising:

a cam-A computer.

38. The system of Claim 1, further comprising:

a plurality of microphones; and

a microphone computer for combining the outputs of said plurality of microphones.

39. The system of Claim 38, wherein said microphones are directional microphones.

40. The system of Claim 38, wherein said microphones are spaced around a target object that is being recorded.

41. The system of Claim 38, wherein said computer is capable of overlaying the output from each of said plurality of microphones in the same moment of time based on the speed of sound and the distance from each of said microphones to a target object.

42. The system of Claim 41, wherein the calculated speed of sound includes an adjustment for the altitude of the microphone and the relative humidity at the site of the microphone.

43. The system of Claim 41, wherein the output of each of said microphones is connected to a digital mixer which is controlled by said microphone computer.

44. A multiple camera video method, comprising the steps of:

using a master pan head to position a master camera;

calculating telemetry settings for a plurality of slave cameras based on the master camera telemetry and a geometric transform in a computer remote from said plurality of slave cameras; and

communicating the calculated telemetry settings to said plurality of slave cameras.

45. The method of Claim 44, wherein said master pan head positions said master camera from a remote location.

46. The method of Claim 45, wherein said master pan head and said master camera communicate via an Ethernet connection.

47.   The method of Claim 45, wherein said master pan head includes a monitor that displays the video feed captured by the master camera.

48.   The method of Claim 44, wherein said master camera and said plurality of slave cameras each include a robotic pan head for positioning the cameras.

49.   The method of Claim 45, further comprising the step of:

storing the video feed from said master camera and said plurality of slave cameras in a storage device.

50.   The method of Claim 49, wherein said storage device is a plurality of digital disc recorders.

51.   The method of Claim 49, wherein said storage device is a file server.

52.   The method of Claim 49, further comprising the steps of:

capturing sound from a plurality of locations around a target object; and

adjusting the timing of the captured sound from each of the plurality of locations to compensate for the effect of the local relative humidity on the speed of sound so that a target sound is in phase from each location.

53. The method of Claim 52, wherein the compensation for the effect of the local relative humidity also includes a compensation for the altitude of each of the plurality of locations.

54. The method of Claim 49, further comprising the step of:

producing a replay video feed based on the stored video feeds from said master camera and plurality of slave cameras.

55. The method of Claim 54, wherein said production step includes the steps of:

using a slow motion controller to select from the video feeds captured by the master camera and the plurality of slave cameras as a current output source; and

using said slow motion controller to move forward or back ward through the current output source.

56. The method of Claim 55, further comprising the step of:

using the slow motion controller to select a second feed captured by the master camera and the plurality of slave cameras as a second output source after said current output source.

57. The method of Claim 54, wherein said produced video feed is recorded to a digital disc recorder.

58. The method of Claim 57, wherein the produced video feed recorded on said digital disc recorder is further recorded on a second digital disc recorder attached to a second slow motion controller.

59. A method for calibrating a multiple camera video system, comprising the steps of:

capturing a plurality of calibration point values as absolute coordinates in three dimensional space;

storing said plurality of absolute coordinates in a data file;

capturing pan and tilt settings for a plurality of cameras when said camera is aimed at each of said calibration points; and

creating a software geometric transform relating the three dimensional absolute coordinates to pan and tilt settings for each of said plurality of cameras.

60. The method of Claim 59, wherein said calibration point absolute coordinates are captured using a surveying theodolite.

61. The method of Claim 59, wherein said calibration point absolute coordinates are captured using a global positioning device.

62. The method of Claim 60, wherein said theodolite is adapted to automatically download said absolute coordinates to a data file in a computer.

63. The method of Claim 59, wherein said pan and tilt settings are read from a master pan head that is remotely controlling said cameras.

64. The method of Claim 59, wherein said captured pan and tilt settings are downloaded into a second data file.

65. The method of Claim 64, further comprising the step of:

generating a zoom calibration table by associating a field of view with a plurality of predefined zoom settings for each of said plurality of cameras.

66. The method of Claim 65, wherein said zoom calibration table is in the second data file.

67. The method of Claim 65, further comprising the step of:

generating a focal calibration table by associating a camera focus setting with each of a plurality of selected focal distances for each of said plurality of cameras.

68. The method of Claim 67, wherein said focal calibration table is in the second data file.

69. A multiple camera video system, comprising:

a plurality of cameras;

a master pan head for positioning a selected master camera from said plurality of cameras;

a master broadcaster computer for calculating telemetry for at least one slave camera from said plurality of cameras; and

at least one paint station connected to said master broadcaster computer.

70. A multiple camera video system, comprising:

a plurality of cameras;

a master pan head for positioning a selected master camera from said plurality of cameras;

a master broadcaster computer for calculating telemetry for at least one slave camera from said plurality of cameras; and

at least one calibration station.

71. The system of Claim 70, wherein said master pan head and said calibration station are remote from said plurality of cameras.

72. The system of Claim 70, further comprising:

a plurality of calibration stations.

73. The system of Claim 70, further comprising:

at least one paint station.

74. A multiple camera video system, comprising:

a plurality of cameras;

a master pan head for positioning a selected master camera from said plurality of cameras;

a master broadcaster computer for calculating telemetry for at least one slave camera from said plurality of cameras; and

at least one video storage device is a plurality of digital disc recorders.

75. The system of Claim 74, further comprising:

at least one calibration station.

76. The system of Claim 75, further comprising:

at least one paint station.

77. A multiple camera video system, comprising:

a plurality of cameras;

a master positioning device for positioning a selected master camera from said plurality of cameras; and

a master broadcaster computer for calculating telemetry for at least one slave camera from said plurality of cameras.

78.   The system of Claim 77, wherein said master positioning device is located remote from said plurality of cameras.